Heritage Desktop Assessment of farm Cherlsey 430, Kuruman Magisterial District, NC Province.

Report prepared by
Paleo Field Services
PO Box 38806, Langenhovenpark
Bloemfontein 9330

April 2022

Summary

A desktop Heritage Impact Assessment was carried out for the purpose of a prospecting rights application on the farm Cherlsey 340, located about 10 km northeast of Deben, next to the R380 provincial road between Kathu and Hotazel. The study areas covers ~2500 ha of low-lying terrain capped by geologically recent surface limestone and wind-blown sand. Potential BIF outcrop will not require further palaeontological investigation. The likelihood of impact on cf. late Neogene/Quaternary fossils is considered low given the low topography terrain, apparent absence of pans and no indication of proper fluvial conditions within the footprint. However, a wide range of tangible heritage resources, including dense Stone Age surface occurrences and capped localities, Late Iron Age and historical structural remnants represent a rich archaeological record for the region. Fortunately, where exposed, sites like these are generally easily detectable by means of a foot survey. It is therefore recommended that any planned development at Cherlsey 430 be preceded by a field assessment of proposed area(s) of impact in the form of a Phase 1 Archaeological Impact Assessment.

Introduction

A desktop Heritage Impact Assessment was carried out for for the purpose of a prospecting rights application on the farm Cherlsey 340, situated in the Magisterial District of Kuruman, Northern Cape Province (**Fig. 1 & 2**). The region's unique and non-renewable palaeontological and archaeological heritage is generally protected in terms of the National Heritage Resources Act (Act No 25 of 1999). The Act identifies what is defined as a heritage resource, the criteria for establishing its significance and lists specific activities for which a heritage specialist study may be required. In this regard, categories of development listed in Section 38 (1) of the NHR Act are:

- The construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- The construction of a bridge or similar structure exceeding 50m in length;
- Any development or other activity which will change the character of the site;
- Exceeding 5000 m² in extent;
- Involving three or more existing erven or subdivisions thereof;
- Involving three or more subdivisions thereof which have been consolidated within the past five years;
- The rezoning of a site exceeding 10 000 m².
- Any other category of development provided for in regulations by the South African Heritage Resources Agency (SAHRA).

A range of contexts can be identified which typically have high or potential cultural significance and which would require some form of heritage specialist involvement. This may include formally protected heritage sites or unprotected, but potentially significant sites or landscapes. In many cases, the nature and degree of heritage significance is largely unknown pending further investigation (e.g. capped sites, assemblages or subsurface fossil remains). On the other hand, it is also possible that a site may contain heritage resources (e.g. structures older than 60 years), with little or no conservation value.

Methodology

The significance of the affected area was evaluated on the basis of existing field data, geological maps, Google Earth images, database information and published literature.

Description of the Affected Area

Locality data

1 : 50 000 scale topographic map: 2722 DB Dibeng

The study areas covers ~2500 ha of low-lying terrain located about 10 km northeast of Deben, next to the R380 provincial road between Kathu and Hotazel (**Fig. 2 & 3**).

Site coordinates (**Fig. 2):**

A) 27°30'19.30"S 22°56'8.77"E
B) 27°30'40.49"S 22°59'46.63"E
C) 27°32'35.08"S 23° 0'5.27"E
D) 27°33'18.93"S 22°57'17.49"E

Regional Background

The 1 : 250 000 scale geological map of the region (2722 Kuruman) indicate that the study area is underlain by surface limestones (Tl), and unconsolidated (Quaternary) wind-blown sands (Qs), unconformably resting on Precambrian banded iron-formation sediments (BIF) of the Asbestos Hills Subgroup (Transvaal Supergroup) (**Fig. 4 & 5).** To the east of Cherlsey 430, older carbonate rocks of the Cambellrand Subgroup, located lower down in the Ghaap Group facies, contain stromatolite- and microfossil-bearing dolomite, dolomitic limestone and chert members that were formed by the precipitation of carbonate rocks when colonies of stromatolites thrived in shallow, tropical marine environments towards the end of the Archaean Eon, 2.6 billion years ago. The shallow marine and lacustrine stromatolites and organic-walled microfossils preserved within the dolomites provide a record of early microbial dominated life in shallow seas and lakes during the Early / Mid Precambrian (c. 2.7-2.5 Ga). Stromatolites are layered mounds, columns, and sheet-like sedimentary rocks, originally formed by the growth of layer upon layer of cyanobacteria, a single-celled photosynthesizing microbe that lives today in a wide range of environments ranging from the shallow shelf to lakes, rivers, and even soils. Bacteria, including the photosynthetic cyanobacteria, were the only form of life on Earth for the first 2 billion years that life existed on Earth. At the eastern edge of the Ghaap Plateau, about 130 km due east of Kuruman, the Precambrian dolomites have been incised at various points by drainage lines that created gorges in which travertine deposits have formed. As a result, the tufas at Norlim (Buxton) near Taung contain solution caves, which are fossiliferous, including the one within the Thabaseek Tufa that produced the type specimen of *Australopithecus australis.* Situated about 600m north-west of the *A. australis* type site, another solution cavity called Equus Cave yielded the Quaternary fossil remains of more than 40 mammalian species, including the extinct taxa *Equus capensis*,

Antidorcas bondi and *Megalotragus priscus*. About 150 km to the southeast of Kuruman, the lower Vaal River basin and its tributaries represent important repositories of late Neogene fossil remains. Dating back to the late Cretaceous, the Vaal River is one of the principal fluvial conduits in southern Africa and its alluvial formations have yielded rare mammal fossils and stone tools so that at the turn of the 19th century, the Vaal River gravels represented the foremost fossil mammal locality in sub-Saharan Africa. Abundant ESA and MSA stone tool assemblages are known from several sites around Kathu (**Fig. 6 & 7**). Kathu Pan, situated to the west of the town of Kathu, is a significant archaeological and paleontological site with several localities that is in the process of being proclaimed a national heritage site. The Kathu Pan dolines were investigated by Beaumont and colleagues (Butzer *et al.,* 1978; Beaumont *et al.,* 1984; Butzer, 1984; Beaumont, 1990, 2006), and provides an excellent archaeological, palaeontological, sedimentary and palaeoclimatic sequence for the region. The Kathu Pan 1 site represents one of a series of 11 dolines that are developed within the Tertiary sequence of the Kalahari Group (**Fig. 8**). Further south, the Dikbosch rock shelter located in travertine deposits of the Ghaap Plateau between Kimberley and Griekwastad, has yielded LSA artefacts associated with faunal remains. Exposed valley floors along the Kuruman River valley are at places decorated with rock engravings that reflect colonial and LSA/Iron Age frontier interactions. Rock art sites in the region, including rock engraving as well as paintings, are known from Wonderwerk Cave (paintings) and the Danielskuil Townlands (engravings). Rock art sites found northwest of Kuruman, include Gamohaan, Maropeng, Batlharos and Mahakane. The Iron Age archaeological footprint in the region is primarily represented by stone wall remnants of the early 19th century BaTlaping capital Dithakong, located near the modern village of Dithakong about 60 km northeast of Kuruman. At the time of the 1801-1803 Borcherds and Somerville expedition, Dithakong was an important BaTlhaping (BaTswana) capital. It was calculated that the number of huts there were at least not less than 1 500 and the number of occupants at somewhere between 8 000 and 25 000 (Maingard, 1933; Beaumont 1983; Morris 1990). Extensive stonewall enclosures are found on the adjacent hils and archaeological investigations during the 1980's have revealed that the ruins were built during the 15th century A.D. and possibly by sedentary Khoi groups. The area consists of primary and secondary enclosures and cover a total area of about 1 km^2 comprising hundreds of circles of varying size Archaeological and historical evidence suggest that the most southerly distribution of Late Iron Age Tswana

settlements in the region during the 18th century AD ranged between the Langeberge and what is known today as Witsand.

Statement of Significance and Recommendations

Potential impacts are summarized in **Table 1**. BIF outcrop will not require further palaeontological investigation and the likelihood of impact on cf. late Neogene/Quaternary fossils is considered low given the low topography terrain, apparent absence of pans and no indication of proper fluvial conditions within the footprint. However, a wide range of tangible heritage resources including dense Stone Age surface occurrences and capped localities, Late Iron Age and historical structural remnants represent a rich archaeological record. Fortunately, where exposed, sites like these are generally easily detectable by means of a foot survey. It is therefore recommended that any planned development at Cherlsey 430 be preceded by a field assessment of proposed area(s) of impact in the form of a Phase 1 Archaeological Impact Assessment.

References

Beaumont, P.B., 1983. *Dithakong*. South African Archaeological Soc. Newsletter 6 (2).

Beaumont, P.B. 1990. *Kathu Townlands 1*, in: Beaumont, P.B. & Morris, D. (Eds.), *Guide to archaeological sites in the Northern Cape*. McGregor Museum, Kimberley, pp. 96-97.

Beaumont, P.B., 1990. Kathu Pan. In: Beaumont P.B., Morris D. (Eds.). *Guide to the Archaeological Sites in the Northern Cape*, McGregor Museum, Kimberley, pp. 101-134.

Beaumont, P.B., Vogel, J.C., 2006. On a timescale for the past million years of human history in central South Africa. *South African Journal of Science* 102, 217-228.

Chazan, M., *et al*. 2012. The Oldowan horizon in Wonderwerk Cave (South Africa): archaeological, geological, paleontological and paleoclimatic evidence. *Journal of Human Evolution* 63(6):859-66.

Chazan, M., Wilkins, J., Morris, D. & Berna, F., 2012. Bestwood 1: a newly discovered Earlier Stone Age living surface near Kathu, Northern Cape Province, South Africa, *Antiquity*86, 331.

Chazan, M., *et al*. 2012. The Oldowan horizon in Wonderwerk Cave (South Africa): archaeological, geological, paleontological and paleoclimatic evidence. *Journal of Human Evolution* 63(6):859-66.

Dart, 1925 Australopithecus africanus: the man-ape of South Africa. *Nature* 115, 193 – 199.

Fock, G.J. and Fock, D.M.L. 1984. *Felsbilder in Sudafrika: Kinderdam und Kalahari.* Köln. Böhlau Verlag.

Helgren, D.M. Acheulian settlement along the lower Vaal River, SA. *Journal of Archaeological Science* 5: 39 – 60.

Humphreys, A.J.B. 1976. Note on the Southern Limits of Iron Age Settlement in the Northern Cape. *South African Archaeological Bulletin* 31(121&122): 54 – 57.

Humphreys, A.J.B. 1978. The re-excavation of Powerhouse Cave and an assessment of Frank Peabody's work on Holocene Deposits in the Taung area. *Ann. of the Cape Prov. Museums (nat. Hist)* 2 (12): 217 – 244.

Kuman, K. 2001. An Acheulean factory site with prepared core technology near Taung, SA. *South African Archaeological Bulletin* 56(173&174): 8 – 22.

Maingard, L.F. 1933. The Brikwa and the ethnic origins of the BaTlaping. *South African Journal of Science* 30, 597 – 602.

Maggs, T.M.O'C. 1972. Bilobial dwellings: a persistant feature of Southern Tswana settlements. *SA Archaeological Soc. Goodwin Series* 1, 54 – 64.

Maggs, T.C. 1976. Iron Age communities of the southern Highveld. *Occasional Papers of the Natal Museum No. 2.*

Partridge, T.C. & Maud, R.R. 2000. *The Cenozoic of Southern Africa*. Oxford Monographs on Geology and Geophysics No. 40.

Thackeray, A.I., Thackeray, J.F., Beaumont, P.B., Vogel, J.C., 1981. Dated rock engravings from Wonderwerk Cave, South Africa. *Science* 214, 64-67.

Van Riet Lowe, C. 1941. Prehistoric art in SA. Archaeological Series No. 5. Bureau of Archaeology. Dept. Of the Interior, Pretoria.

Wilkins, J. & Chazan, M., 2012. Blade production ~500 thousand years ago at Kathu Pan 1, South Africa: support for a multiple origins hypothesis for early Middle Pleistocene blade technologies, *Journal of Archaeological Science* 39, 1883-1900

DECLARATION OF INDEPENDENCE

Paleo Field Services act as an independent specialist consultant and do not or will not have any financial interest in the undertaking of the activity other than remuneration for work as stipulated in the terms of reference. Paleo Field Services has no interest in secondary or downstream developments as a result of the authorization of this project.

Tables and Figures

Table 1. List of potential impacts in the region.

Rock types, features and Age	Potential Archaeology & Palaeontology in region	Potential for Palaeontological Impact at Cherlsey 430	Potential for archaeological Impact at Cherlsey 430
Superficial deposits, soils, alluvium. Quaternary to Recent	Uncapped/capped Stone Age lithic assemblages, Late Iron Age and Historical structures, Graveyards; Fossil remains from pan or alluvial deposits	Low- Very Low	High
Karst –related cave sites, tufas & breccia	Capped Stone Age lithic assemblages; Vertebrate fossil remains	Low- Very Low	Low- Very Low
Surface limestones, Pan-related dolines Cf. Late Neogene - Quaternary	ESA/MSA stone tools; Plant microfossil and vertebrate remains	Low - Moderate	Moderate
Banded Iron-Formation (Asbestos Hills Subgroup) Mid-Precambrian	Raw material for stone tool production; Reflection of early Proterozoic environmental conditions following iron deposition as a result of the build-up of free oxygen in the oceans by cyanobacterial photosynthesis	Low	High

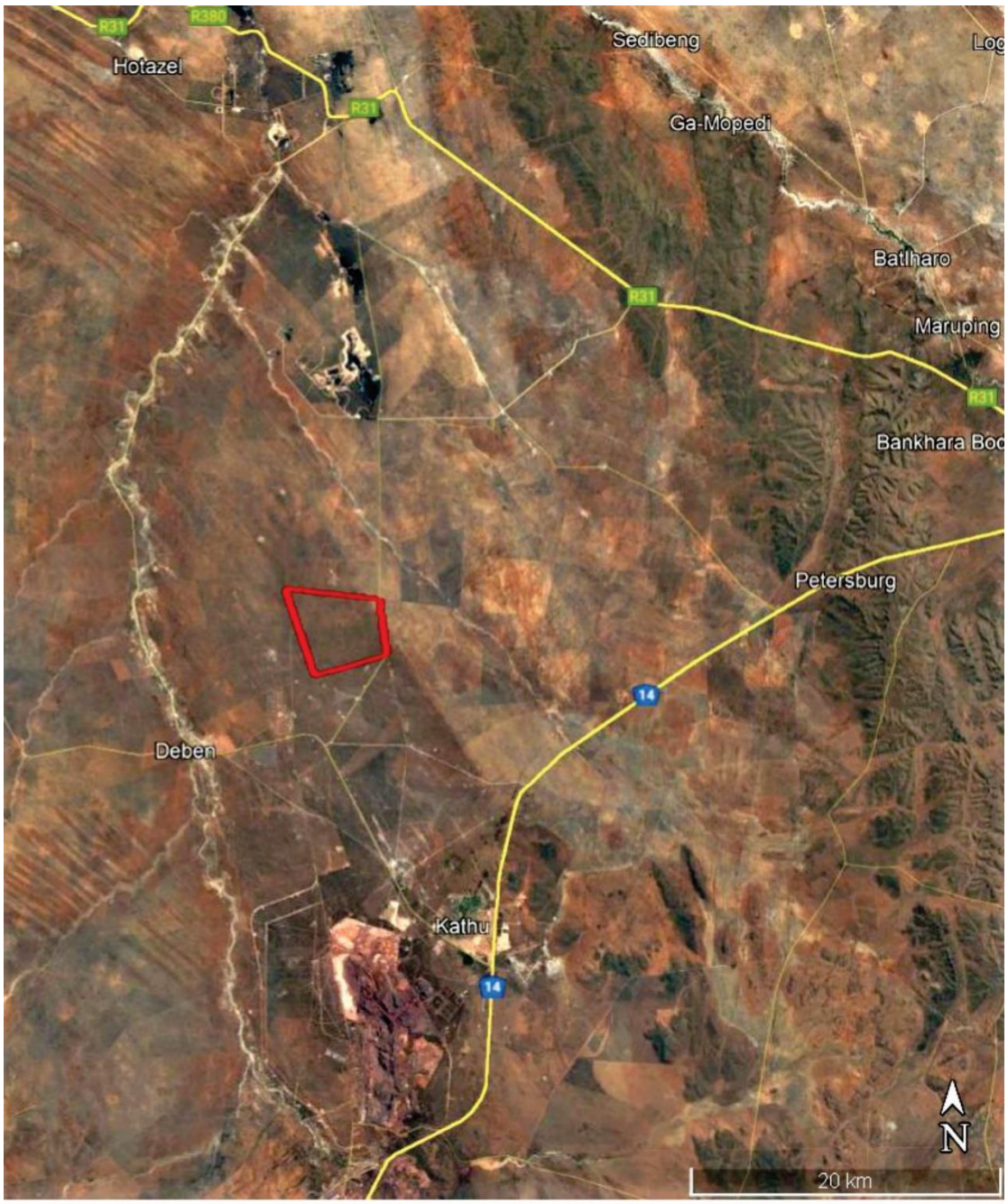

Figure 1. Position of farm Cherlsey 430 in relation to Kathu and Hotazel.

Figure 2. Aerial view of farm Cherlsey 430.

Figure 3. General view of landscape immediately north of Cherlsey 430 (recorded during previous unrelated field work).

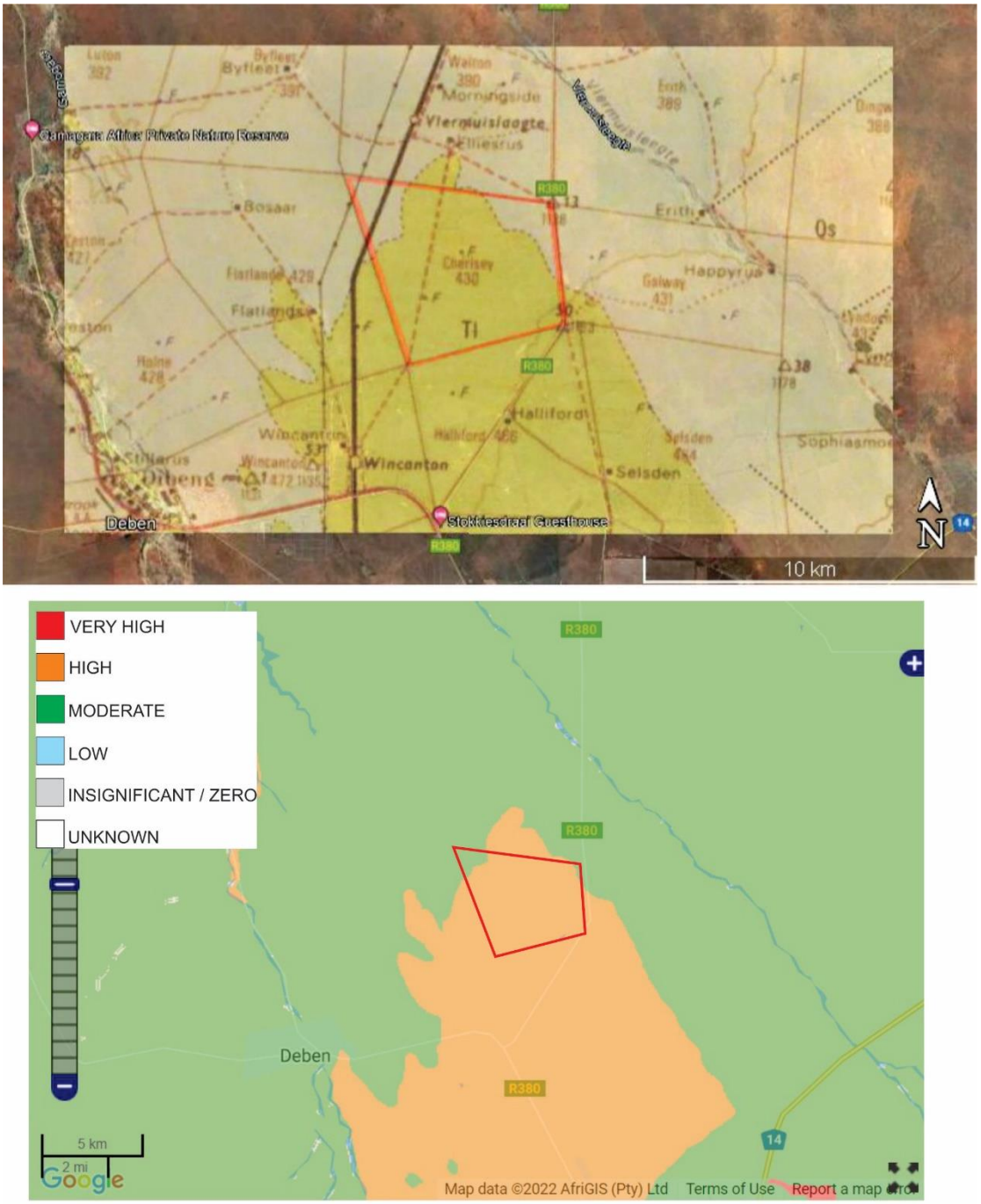

Figure 4. 1 : 250 000 scale geological map 2722 Kuruman (above) indicates that the study area is underlain by cf. late Neogene surface limestones (Tl), and unconsolidated (Quaternary) wind-blown sands (Qs), unconformably resting on Precambrian banded iron-formation sediments (Asbestos Hills Subgroup). Position of study area marked on SAHRIS palaeosensitivity map (below).

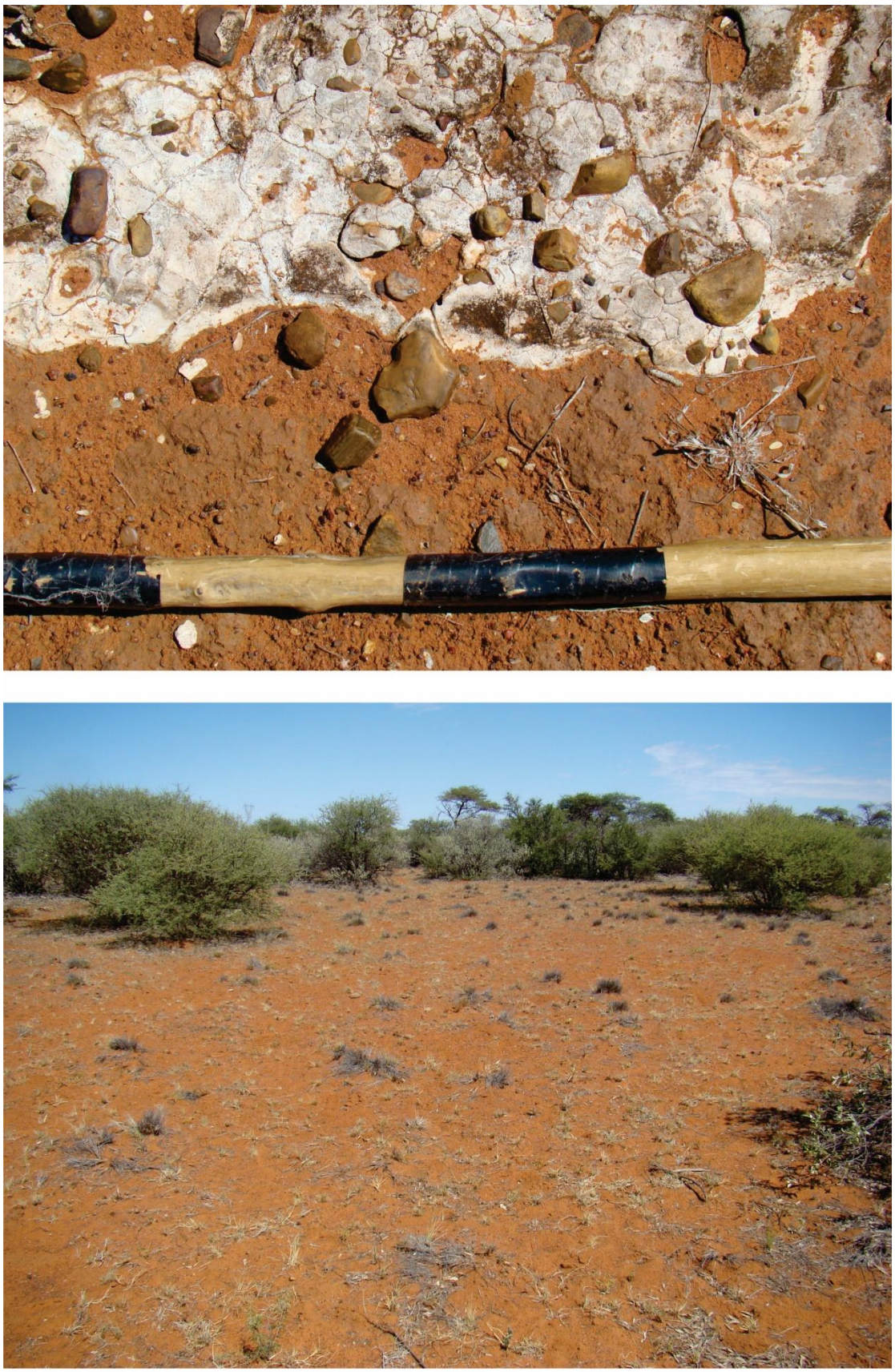

Figure 5 General view of superficial sediments limestone (above) and thick aeolian sand overburden (below) on farm Walton 390, which is located adjacent to the study area.

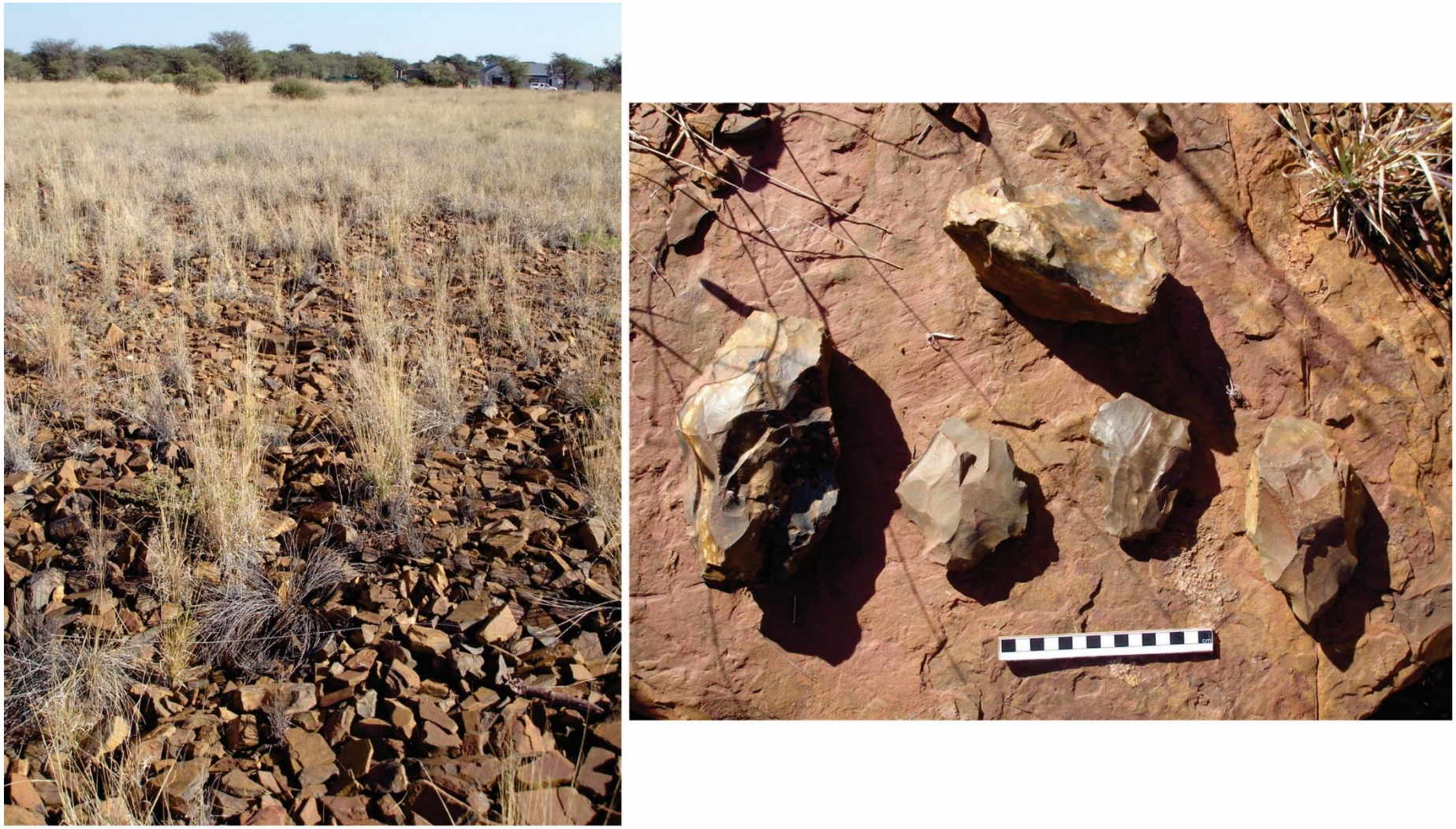

Figure 6. Dense concentrations of Early Stone Age artefacts at the Kathu Townlands site.

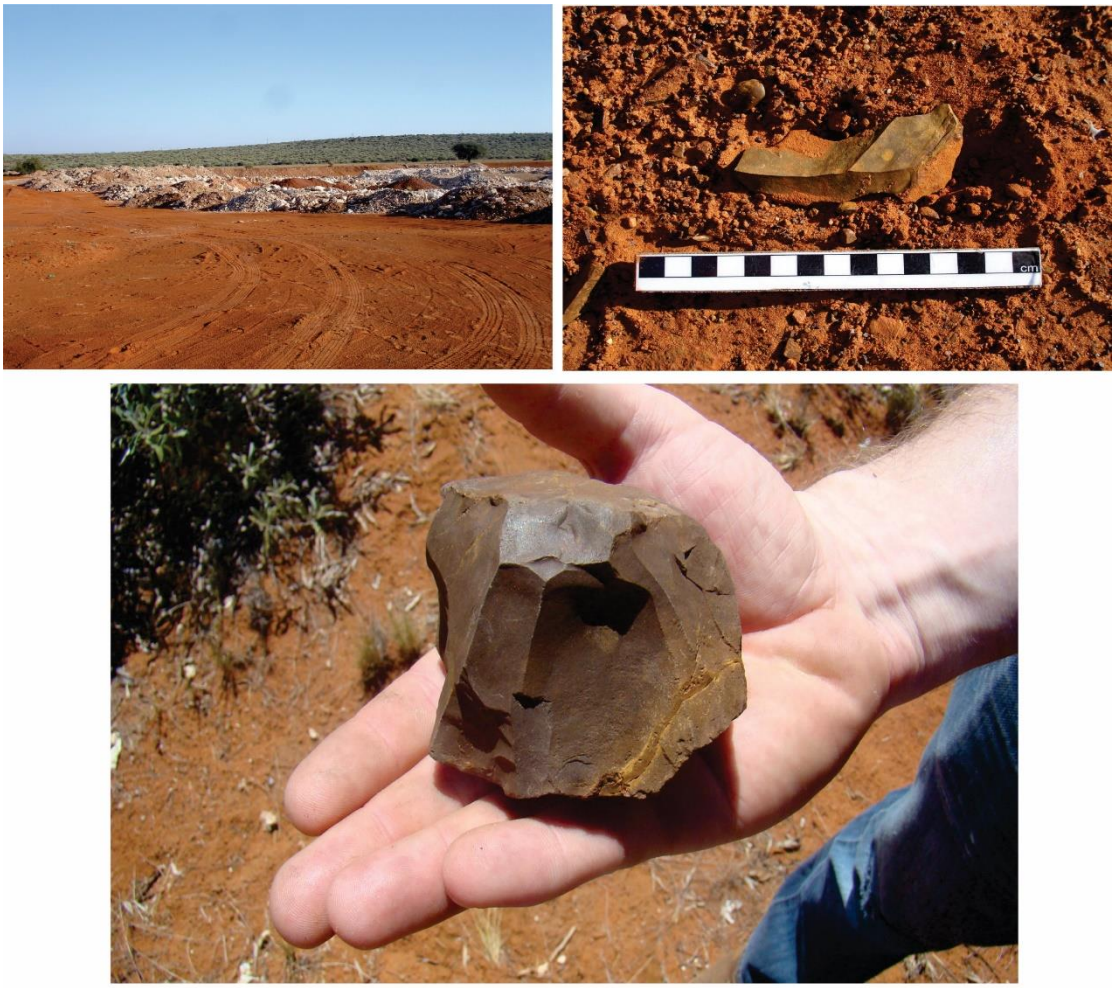

Figure 7. Sand removal at Bestwood east of Kathu town revealed abundant stone tool assemblages.(above left and right). MSA polyhedral core from farm Walton 390, situated adjacent to study area (below; recorded during previous unrelated field work).

Figure 8. A archaeologically significant sinkhole at the Kathu Pan 1 site, looking south.